

What you need to know now for the future of your network

Welcome to the fifteenth edition of the Standards Advisor. This report is issued quarterly and provides updates on the standards relevant to the structured cabling industry, and the impact they have on your network design, planning and operations.

This summary represents standards meetings held during the second quarter of 2017 and reports on activities from all aspects of the cabling industry. These activities range from the applications standards (IEEE 802.3 and 802.11 and T11—Fibre Channel) to the cabling standards (ANSI/TIA, ISO/IEC, CENELEC) and, finally, cover new developments in the world of multisource agreements (MSAs).

ISO/IEC JTC1/SC25 WG3: no meetings held during Q2 2017

The 63rd ISO/IEC JTC1/SC25 WG3 meeting will be held
11-15 September 2017 in Bruges, Belgium

TIA TR-42: Philadelphia, Pennsylvania USA 6-10 February 2017

1. TR42.1 Commercial Building Cabling

- TIA-942-B data center standard ballot comments were resolved and the document was approved for publication
- ANSI/TIA-568.0-D-1 generic cabling addendum comments were resolved and the document approved for publication
- TIA-1179-A healthcare standard ballot comments were resolved and the document was approved for publication
- ANSI/TIA-568.1-D-1 commercial cabling addendum comments were resolved and the document re-circulated as a second industry ballot
- ANSI/TIA-4966-1 education premises addendum ballot comments were resolved and the document re-circulated as a default ballot
- ANSI/TIA-570-D residential cabling standard comments were resolved and the document re-circulated for an industry ballot
- Category 8 was added to all premises documents as a recognized media up to 30 m and when used beyond 30 m, the links/channels are Category 6A
- TR42.1 approved a PAR and started a project as described below to include an addendum to ANSI/TIA-862-B IBS standard for single balanced twisted-pair use cases, topology, and architectures for IBS applications.
- TR42.1 approved a PAR and started a project as described below to include an addendum to ANSI/TIA-568.0-D generic cabling standard for single balanced twisted-pair use cases, topology, and architecture providing guidelines in buildings where 1-pair cabling can be deployed in addition to IBS.

2. TR-42.3 Pathways and Spaces

- TIA-569-D Addendum 2: Additional requirements for pathways used to support cabling for remote powering ballot comments were resolved and the document approved for re-circulation as a second TIA ballot
 - A separate table for different types of trays with heat dissipation properties based on the depth of cabling in the tray (1 inch, 2 inch, 3 inches ... up to 6 inches) was added

3. TR-42.6 Telecommunications Administration

- ANSI/TIA-606-C administration standard default ballot was approved for publication

- ANSI/TIA-5048, which is the adoption of ISO/IEC 18598 Automated Infrastructure Management (AIM) standard, was approved for publication
- TR42.6 agreed to merge with TIA TR42.3 in the interest of improving meeting logistics and efficiency, starting at the September 2017 meeting

4. TR42.7 Copper cabling systems and components

- ANSI/TIA-568.4-D coaxial cabling standard approved for publication
- ANSI/TIA-568.2-D approved for recirculation as an industry ballot that includes the following major topics
 - 28 AWG cordage transmission parameters included in a normative annex
 - Alternative simplified alien crosstalk measurement method for cable
 - Patch cord NEXT measurement relaxation for 3645 pair combinations
- Launched project to develop addendum to TIA TSB-184-A to cover guidelines and limitations for power distribution using 28 AWG
- Started TG to study making TIA TSB-184-A normative by converting it to an addendum to ANSI/TIA/568.2-D
- Approved a PAR and started a new project around a single twisted-pair cabling and components standard to provide specifications for cables, connectors, cords, links and channels using 1-pair connectivity in non-industrial premises telecommunications networks, focusing on MICE1 environments

5. TIA TR42.9 Industrial cabling

- TR42.9 resolved comments on the 1G industrial cabling addendum 2 to ANSI/TIA-1005-A-2012 for cabling supporting 1000BASE-T for E2 and E3 environments and approved re-circulation as a Committee ballot
- TR42.9 resolved comments on one pair cabling supporting Type B of IEEE 1000BASE-T1 for E2 and E3 environments as an Addendum 3 to ANSI/TIA-1005-A-2012, and approved re-circulated as a mock ballot
- TR42.9 edited and voted to send a new work item PAR to TR42 to create single balanced twisted-pair cabling for MICE 2 and MICE 3 environments

6. TIA TR42.10 Sustainable Information Communications Technology

- TIA TSB-5046 was approved for publication
- The committee agreed to go dormant till there is a need to revise the two documents it developed, and may be merged into TR 42.1

7. TIA TR-42.11 - Optical Fiber Systems

- A letter was received from COBO (Consortium for On Board Optics) that requested a copy of ANSI/TIA-568.3-D to help develop optical lane assignments that would operate over structured cabling. TIA agreed to send the document.
- The subcommittee expressed interest in considering adoption or adaptation of IEC TR 61282-15 regarding testing of cabling terminated by MPO connectors. To that end, a copy will be requested from IEC.
- A project to create a first addendum to ANSI/TIA-568.3-D optical fiber cabling and components standard was initiated. The scope of the project addresses the following items.
 - Use of OM5 name (for wideband MMF cabling)
 - Use of OS1a name (for low-water-peak SM cabling with indoor cable construction attenuation characteristics)
 - Color for OM5 connecting hardware (choose a distinctive color)
 - Connecting hardware color definitions (improve specificity)
 - Reference-grade to standard-grade loss allocation (adjustments finding consensus)
 - MPO testing (consideration of content from IEC TR 61282-15)
 - Updates based on FOTP-171 revision B (regarding assembly attenuation measurements, now in ballot within TR-42.13)

8. TR42.12 – Fiber and Cable

- A draft second addendum to TIA-598-D to define the lime color for OM5 cable jackets was reviewed and approved for first ballot.

9. TR-42.13 – Connectors and Metrology

- Comments were resolved on the first ANSI ballot of ANSI/TIA-455-171-B regarding measurement of insertion loss of terminated assemblies. The document will recirculate for a second ANSI ballot.

10. Closing TR42 Plenary

- TR42 discussed and approved the following liaison letters:
 - IEEE 802.3 liaison describing the 4 new single pair projects
 - Approved response to COBO liaison request to share ANSI/TIA-568.3-D optical fiber cabling and components standard. Motion to send the document to COBO was approved by TR42
- Endorsed 6 out of 7 public inputs to the NEC 2020 code from TIA public input task group

The next plenary meeting of TIA TR42 committees will be held 18-22 September 2017 in Las Vegas, NV USA

INCITS T11 Fibre Channel: Anchorage, AK, USA, 5-9 June, 2017

- FC-PI-7 {64GFC & 256GFC}
 - Marketing Requirements Document - Now updated to include OM5 cabling in its support for 64GFC -256GFC over 100 meters.
 - Will determine at the August meeting whether FC-PI-7 will include 256GFC. Chance that efforts to achieve 100m at 256GFC may move at a slower pace, requiring the release of a subsequent FC-PI-7P technical document.
- 64GFG 10km Tentative Baseline – T11-2017-0179 v000
 - Optical Transmitter, Receiver & Power Budget characteristics defined for 64GFC-LW (SMF)
 - Values need to be reviewed and validated prior to inclusion in PI-7 optical TX/RX tables.

- Next Key Event – PlugFest, scheduled for end of October. No specific dates or location set yet.

The next meeting of INCITS/T11 will be held 7-9 August 2017 in Providence RI

CENELEC TC215 WG2 meeting 42 in Vienna, Austria, 5-7 April, 2017

- EN 50174-2, Installation Planning and Practices Inside Buildings:
 - Work done on remote powering and measurement of cabling in different installation conditions was compared to the mathematic model and showed good correlation. Installation requirements updated accordingly.
- CLC/TR 50669 "Electromagnetic characteristics of linear cable management systems (CMS)
 - Document published and work has started to incorporate it into the power separation part of EN 50174-2

- EN 50174-99-1 Remote Powering
 - This document will be revised following publication of the revised EN 50174-1 and -2.

The next meeting of CENELEC TC215 WG2 will be held 9-10 November 2017 in Athens, Greece

CENELEC TC215 Plenary 23 in Vienna, Austria on 5 April, 2017

- The ongoing work on the EN 50600 series of Data Center Premises standards was endorsed.
- TC 215 welcomed the Green Grid's offer to introduce the DCMM into the EN 50600 series of documents

- It was agreed to withdraw EN 50346 as soon as revised EN 50173 series are published

The next meeting of CENELEC TC215 will be held 11 April 2018 in location TBD.

1 Working Group 1 - Optical Fiber

- The second ballot (the first Committee Draft for Vote) of 60793-2-10 ed. 6, the multimode fiber detailed specification, passed without a negative vote from any country. All comments were resolved and the document was approved for publication. Fiber model A1a.4 is now the international equivalent of TIA-492AAAE wideband MMF.

The next IEC 86A meeting will be held

2 – 6 October 2017 in Vladivostok, Russia (full IEC plenary)

IEEE 802.3 Ethernet Meeting: New Orleans, Louisiana USA 20-24 May 2017 (Working Group Interim)

1. IEEE 802.3bt 4 pair Power over Ethernet

- The IEEE 802.3bt 4-pair power over Ethernet Task Force continues through working group ballot, and is expected to complete this phase at the July 2017 meeting. The document is technically complete and no new features are being added, but has undergone substantial editorial changes, splitting the two new “Types” of PoE, Type 3 (up to 60W on 4 pairs) and Type 4 (up to 90W at the PSE) from the existing specifications for PoE (802.3af and 802.3at are “Type 1” and “Type 2”).
- The IEEE 802.3bt draft currently references TIA TSB-184-A and ISO/IEC TR 29125 for cabling requirements. Additionally, the 802.3bt draft expands all Types of end-point PoE (PoE delivered from a switch) to support 10GBASE-T and the new 2.5G and 5GBASE-T speeds, and defines new midspan PSE variants for the new speeds as well.
- The group expects to complete Working Group Ballot at its next meeting, in July 2017, entering the final ballot phase, Sponsor Ballot, after that, and be on-track for approval in the first quarter of 2018.

Single Twisted Pair Copper Standards

2. IEEE P802.3cg 10 Mbps Single-Twisted-Pair Ethernet

- The project objectives cover industrial, automotive, and building automation use cases, with two dominant, but different application reaches, one up to 15m, and one of approximately 1km.
- The project scope includes both the potential for multiple PHY transceiver types and associated powering for the target applications.
- The scope of the applications discussed has expanded to a variety of in-building applications, including a variety of sensors and even data-center connectivity for sensors and housekeeping functions in disaggregated servers. These tend to focus on link segments between 15m and 200m in length. This discussion may result in additional single-pair projects.
- The project adopted a timeline, and is on track to adopt further baseline proposals for PHYs in the July timeframe, and produce a Working Group ballot draft around March of 2018.
- The project made progress towards baseline specification for the up-to 1km process control and building automation application, adopting PAM 3 signaling and various electrical specifications. The project may yet adopt a second PHY specification for the shorter-reach applications.
- The project also adopted powering models, including four new powering profiles for plug-and-play systems for 20V and 50V powering on loops up to 59 ohms loop resistance and power levels to 13.4W. The group additionally agreed to provide for engineered systems at 50 V with high power (up to 60W) and ultra-high power (up to 120 W) for process control applications.

3. IEEE 802.3ch Multigigabit Automotive Ethernet PHY Task Force

- The Multigigabit Automotive Ethernet Task Force PAR was approved by the IEEE Standards Board in May 2017, and the Task Force held its first meeting at the May 2017 802.3 interim.
- The Task Force has objectives for 2.5Gbps, 5Gbps, and 10Gbps PHYs in automotive applications up to 15m and 4 connectors, although the specifics of the media types are not yet determined. Initial activity has been focused on characterizing media types, including twisted pair media to 7.5GHz.
- While there has been discussion around optical PHY types, the group does not have an optical media objective at this time. The project objectives also include use of 802.3bu PoDL for remote powering and auto-negotiation with the existing 100 Mbps and 1 Gbps single-pair Ethernet PHYs.

4. IEEE 802.3bs - 400G and 200G on SM fiber

- The draft progressed through second Sponsor ballot, the last stage.
- The group is actively seeking a solution to proposals to allow more relaxed transmitter extinction ratio which, in trade, increases the penalty associated with multipath interference in single-mode cabling. This can reduce the available loss budget for single-mode cabling.
- The work remains on track to publish at the end of 2017.

5. IEEE 802.3cd - 50G, 100G, and 200G

- The draft progressed through the fourth Task Force draft review and was approved for first Working Group ballot.
- Three new connectors for DAC cables were approved, bringing the total to five. The microQSFP, QSFP-DD and OSFP forms joined the incumbent SFP28 and QSFP28. These connectors names are also synonymous with their transceiver form factors.
- The acceptance of OM5 within the ISO 11801 ed. 3 final ballot allowed all references to wideband multimode fiber cabling to be upgraded to OM5 and fiber-specific references to be upgraded to IEC 60793-2-10 type A1a.4.
- A new table was added that accounts for the effects of Multipath Interference (MPI) in single-mode cabling channels by reducing the available loss budget as these reflectances become more numerous and higher in amplitude. The reduction is limited to 0.5 dB.
- The work remains on track to publish in September 2018.

The next IEEE 802.3 meeting will be held

10-13 July 2017 in Berlin, Germany (802 Plenary).